



Solid Waste Management Services



Premier Environmental Services, Inc. (Premier) offers a wide range of **Solid Waste Management Services**. Our staff of experienced engineers and scientists has provided hazardous, industrial non-hazardous and municipal solid waste consulting services to private, public and government clients, completing numerous projects involving the following activities:

- Plans, Designs, Engineering and Siting
- Permitting and Regulatory Liaison
- Construction QA/QC and Oversight
- Monitoring, Inspection and Reporting
- Closure Design and Engineering
- Landfill Asset Redevelopment

Plans, Designs, Engineering and Siting

Whether a Greenfield landfill site, the expansion/permit upgrade of an existing facility, the closure of a landfill, or the design of new solid waste transfer stations, Premier provides a full array of solid waste management services. For planning purposes we assist with assessment studies, operational business plans, recycling and waste minimization plans, and financial management plans. In support of site selection and facility design we perform or manage geologic, geotechnical and hydrogeologic studies, land use analysis, wetlands, flood plain, T&E species and seismic impact evaluations. We offer full design capabilities, including liner and leachate collection systems, multi-layer final cover systems, drainage systems and slurry wall containment designs. **We have routinely developed all necessary operational and closure plans for these facilities, including closure and post-closure plans, leachate management plans, ground and surface water monitoring plans and methane monitoring plans.**

Permitting and Regulatory Liaison

One key element of all successful projects is timely and effective interaction with regulatory agencies. Premier's staff has significant experience in RCRA and non-RCRA permitting and possesses a high-degree of regulatory knowledge and negotiation skills. We interact early and often with regulatory agencies during design and closure permitting to steer the process toward a successful, cost-effective and timely outcome for our clients.

Construction QA/QC and Oversight

After the substantial investment in design and permitting, it is imperative that construction for new sites and closure of existing sites proceed according to the plans and specifications in the approved permit documents, and that all activities and material selections are closely supervised and properly documented as evidence of that compliance. Premier understands the importance of assuring that these activities are completed correctly the first time, avoiding costly errors, delays and cost overruns. Premier can assist in the contractor selection process and work as your agent to provide the necessary coordination and oversight of their activities during every phase of the project. In some cases, a turnkey approach is preferred by our clients, allowing construction to proceed without incurring the cost and schedule delays of bid package preparation, management of the bidding process, contractor selection and contract negotiation. Our construction company, **Pantheon**, can be used in that capacity at competitive prices and without the traditional subcontractor markup.

Monitoring, Inspection and Reporting

Premier can assist with the design, regulatory approval, and implementation of environmental monitoring and O&M plans for operating and closed facilities. We recognize the need for plans that are efficient and cost-effective in terms of field implementation and reporting. Premier has significant experience designing and implementing cost-effective groundwater, stormwater and landfill gas monitoring programs in addition to negotiating with agencies to modify existing plans using fate and transport analysis and risk-based approaches to reduce our clients' long term costs. Premier can perform slope stability analysis and erosion control, and provide routine inspections for O&M purposes. We can also monitor incoming waste and develop and submit summary reports for landfill operations.

To learn more about any of Premier's services, please contact any of our staff or visit our website at www.premiercorp-usa.com

Representative Staff Profiles:

Gary Horwitch, PE, Practice Leader
ghorwitch@premiercorp-usa.com

Expertise: 35+ years of experience in the permitting and operations of hazardous, industrial non-hazardous and municipal solid waste landfill facilities in numerous locations across the US; extensive experience in RCRA Subtitle C and Subtitle D permitting ranging from Greenfield sites to the modification of existing sites; Engineer of Record on over 50 landfill sites within the US.

Russ Schlecht, PE, Senior Consultant
rschlecht@premiercorp-usa.com

Expertise: 29+ years of broad experience in environmental and civil projects; technical and regulatory aspects of RCRA permitting, assessment and remediation projects; siting studies and conceptual design for industrial landfills; development and implementation of closure plans and post closure care actions including monitoring and remediation.

Joe Ricker, PE, Senior Engineer
jricker@premiercorp-usa.com

Expertise: Extensive experience in project management; investigation and characterization; evaluation of remedial alternatives; regulatory strategy and agency negotiation; remedial design and implementation; permitting; modeling; design and construction oversight for several solid waste and RCRA landfill covers.

Steven Hart, PG, Senior Consultant
shart@premiercorp-usa.com

Expertise: 25 years of experience in both investigation and remediation of primarily industrial sites; siting study for an industrial landfill; prior to 1984, initiated and ran Georgia EPD's program to evaluate hydrogeologic suitability of proposed landfill sites.

Pat Kelley, CHMM, Senior Scientist
pkelley@premiercorp-usa.com

Expertise: Assessment of Corrective Measures (ACM) for closed landfills; fate and transport modeling and site specific risk assessment in support of natural attenuation; methane assessment and mitigation.

Brian Laine, PG, PE, Project Engineer
blaine@premiercorp-usa.com

Expertise: Groundwater modeling; contaminant transport; contaminant plume stability; design and construction of landfill caps; hazardous waste classification; innovative and standard remedial design and implementation.

David Richardson, PG, Senior Consultant
drichardson@premiercorp-usa.com

Expertise: Landfill siting, permitting, and monitoring; hazardous waste management; groundwater modeling; CERCLA RI/FS; agency negotiations; remedial alternatives; human health risk assessment; RCRA Corrective Action.

Solid Waste Management Services



Case Study: Design and Permitting of an Innovative Expansion of TSD Landfill Coupled with Groundwater Remediation and a Reduction of O&M Costs

Our innovative field services company, **PREMO**, was created specifically to provide cost-effective Site Management, O&M and Field Services. Non-traditional and flexible, PREMO has low overhead costs and specializes in solutions tailored to the demands of individual sites and clients. PREMO can perform environmental monitoring, reporting and O&M activities at your solid waste facility at very competitive rates.

Closure Design and Engineering

Premier recognizes the economic value of solid waste capacity, and whenever possible maximizes the potential of any facility to achieve its fullest potential prior to closing. Our full design capabilities and innovative problem solving approach can help secure cost-effective closures for permitted and unpermitted facilities. We take pride in developing and implementing creative solutions that meet challenging financial, logistical or engineering constraints. For instance, our staff has revised permits and reopened sites to receive additional waste (and new revenues) in order to facilitate an eventual closure that is more economical and environmentally sound than could have been obtained with the original configuration.

Landfill Asset Redevelopment

The **Landfill Monetization and Liability Reduction Program** developed by Premier brings a value-added alternative to the typical approach manufacturing sites use for solid waste management in company-owned landfills. The program evaluates the potential benefits of the sale of existing permitted landfills to established solid waste management firms, with the sale structured to provide future use of the facility by both parties. The seller benefits through reduced operational costs, elimination of closure costs and the monetization of an existing liability. The buyer gains well-positioned capacity for additional waste, typically construction and demolition debris, and assumes closure liability. Premier brings these concepts and interested parties together to evaluate the regulatory and business aspects of redevelopment for both operating and closed landfills.

A hazardous waste Treatment, Storage, and Disposal (TSD) facility located in Texas desired to extend their existing disposal capacity by 10 to 20 years. The existing site had numerous small lined and unlined hazardous waste disposal cells that were a combination of pre-Subtitle C and Subtitle C landfill cells. The remaining landfill life at the site was less than 2 years based on the current and projected rate of waste receipt. The facility was also under a ground water compliance plan for contamination of the shallow ground water aquifer due to leakage from the pre-Subtitle C landfill cells. At the time, the ground water extraction and monitoring system consisted of over 100 extraction and monitor wells located along the down-gradient boundary of the site and within the interior of the site. The ground water extraction system was designed as an active down-gradient barrier to off-site movement of contaminants. The challenge was to expand the capacity and life of the facility without expanding the overall footprint of the site and while maintaining the necessary barrier to contaminant movement in groundwater.

Solution

After review of the configuration of the existing landfill cells and the geology and hydrogeology at the site, additional modeling of the shallow aquifer was performed using a random walk model. Using experience from the design of other hazardous waste landfill containment systems, it was decided that the most prudent and cost effective way to expand the site's capacity was to design and re-permit a modified ground water extraction, containment and monitoring system that replaced the numerous interior pumping and monitoring wells with a system primarily located at the perimeter of the site.



The ultimate solution to the client's needs included the installation of a perimeter vertical soil-bentonite barrier wall to a depth of 50 to 60 feet below the ground surface to act as a passive hydraulic boundary to off-site flow of contaminated ground water. Approximately 10 interior ground water extraction wells were strategically installed within the confines of the cut off wall to remove the entrapped ground water within the interior portion of the site. On the outside of the soil-bentonite barrier wall, ten monitor wells were installed to monitor potential outward flow from the site. This design allowed the interior pumping wells to create an inward gradient so that outward movement of contaminants through the soil-bentonite barrier cut off wall could not occur. As a result of this revised ground water remediation plan, the facility was able to accommodate a new multi-million cubic yard hazardous waste disposal cell.



The project included the design and permitting of the new hazardous waste disposal cell and the revised ground water remediation plan for the site. After approval from the TX Commission on Environment Quality (TCEQ), detailed construction plans and specifications for both the hazardous waste landfill cell and the ground water remediation system were prepared. Construction QA/QC was performed during the installation of both the new landfill cell and ground water system, including the final certification of both systems to the TCEQ.

Results

The landfill design and re-configuration described above allowed the facility to continue to operate as a commercial hazardous waste TSD facility for at least another 10 to 20 years and reduced the cost of operation of the ground water remediation and monitoring system by approximately 80 to 90 percent.